

<b>Notice of Allowability</b>	Application No.	Applicant(s)
	10/706,329	TRAYNOR ET AL.
	Examiner	Art Unit

Nikita Wells

2881

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to Application filed 12 November 2003.
2.  The allowed claim(s) is/are 1-25.
3.  The drawings filed on 12 November 2003 are accepted by the Examiner.
4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
 of the:
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of
   
Paper No./Mail Date \_\_\_\_\_.
7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),
   
Paper No./Mail Date 112904
4.  Examiner's Comment Regarding Requirement for Deposit
   
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),
   
Paper No./Mail Date 112904
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_

Nikita Wells  
Primary Examiner  
Art Unit: 2881

## **Detailed Action**

### ***Examiner's amendment***

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with James Kurka on December 7, 2004.

The Examiner initiated an Interview with the Applicant in order to insert allowable material from dependent claim 12 into the independent claim 11 in order that the application could be allowed. Claims 11 and 12 are amended as follows:

In claim 11, line 2: after "ion source;" , the following has been inserted: --an electron emitter assembly configured to emit electron beams, wherein the electron emitter assembly comprises carbon nanotube bundles fixed to a substrate for emitting the electron beams, a first control grid configured to control emission of the electron beams, and a second control grid configured to control energies of the electron beams;--.

In claim 12, lines 3-7: the following has been deleted: "an electron emitter assembly configured to emit electron beams, wherein the electron emitter assembly comprises carbon nanotube bundles fixed to a substrate for emitting the electron beams, a first control grid configured to control emission of the electron beams, and a second control grid configured to control energies of the electron beams;".

***Allowable Subject Matter***

2. Claims 1-25 are allowed.
3. The following is an examiner's statement of reasons for allowance:

With respect to the independent claims 1, 7, and 11, prior art fails to disclose or make obvious, in combination with other recited features of the claim limitations, an ion source for use in a mass spectrometer, comprising: an electron emitter assembly configured to emit electron beams, wherein the electron emitter assembly comprises carbon nanotube bundles fixed to a substrate for emitting the electron beams, a first control grid configured to control emission of the electron beams, and a second control grid configured to control energies of the electron beams; an ionization chamber having an electron-beam inlet to allow the electron beams to enter the ionization chamber, a sample inlet for sample introduction, and an ion-beam outlet to provide an exit for ionized sample molecules. The allowable aspect of the invention is the use of an electron emitter assembly comprising carbon nanotube bundles fixed to a substrate for emitting the electron beams to be used within the ion source in order to produce a stable stream of electrons with predictable trajectories and uniform density.

The dependent claims 2-6, 8-10, and 12-25, are allowable by virtue of their dependence upon the independent claims 1, 7, and 11, respectively.

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dai et al. (2001/0019238 A1 and 6,232,706 B1) and Takai et al. (2003/0090190 A1) disclose field emission devices utilizing carbon nanotube bundles, as well as the making of these

carbon nanotube bundles. F.J. Herman (6,495,116 B1) discloses methods and systems for net shape manufacturing using carbon nanotubes.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikita Wells whose telephone number is (571) 272-2484. The examiner can normally be reached on 8:30 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The central fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Nikita Wells, Primary Examiner  
Art Unit 2881  
December 7, 2004